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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,318	10/22/2003	David M. Shamine	03-274	2187

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EXAMINER

CHRISTENSEN, RYAN S

ART UNIT PAPER NUMBER

2856

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,318

Applicant(s)

SHAMINE, DAVID M.

Examiner

Ryan Christensen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,9-13 and 17-19 is/are rejected.
- 7) ☐ Claim(s) 2,5,7,8,14-16, and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. In response to the amendments filed on 7/11/2006 the restriction requirement is withdrawn because the invention groups no longer have two-way distinctiveness. Specifically, the subcombination represented by claim 1 is no longer useable for another purpose.

Claim Rejections - 35 USC § 112

2. Claim 1 recites "each collection cavity." There is insufficient antecedent basis for this limitation because claim 1 refers to "a collection cavity."
3. Claims 2 recite the limitation "each diagnostic port." There is insufficient antecedent basis for this limitation because claim 1 refers to "a diagnostic port."
4. Claims 6 recite the limitation "said diagnostic ports." There is insufficient antecedent basis for this limitation because claim 1 refers to "a diagnostic port."
5. Claims 10, 11 recite the limitation "each diagnostic port." There is insufficient antecedent basis for this limitation because claim 9 refers to "a diagnostic port."
6. Claim 13 recites the limitation "diagnostic ports." There is insufficient antecedent basis for this limitation because claim 9 refers to "a diagnostic port."

Claim Objections

7. Claims 1, 9 and 10 are objected to for being ambiguous.

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8. With respect to claim 1, "a leak diagnostic port fluidly connected to each of said leak lines" is ambiguous because it is not clear if there is one port that is fluidly connected to all the lines, or if there is a plurality of ports each one being connected to one of the leak lines. The subsequent claims suggest the latter
9. With respect to claim 9, "a leak diagnostic port operably connected to capture fuel from different ones of said high pressure fuel spaces" is ambiguous because it is not clear from the claim language if there is one port that is fluidly connected to all the lines, or if there is a plurality of ports each one being connected to one of the leak lines.
10. With respect to claim 10, " a separate leak collection cavity fluidly disposed between each diagnostic port and an associated leak one of said leak lines" is ambiguous because it is not clear if there is collection cavity between all the leak lines or individual cavities connected between each leak line and diagnostic port. Appropriate correction is required.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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12. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,817,343 (Greco et al.). The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.
13. With respect to claim 9, Greco et al. disclose a plurality of high pressure fuel spaces (Col. 4 line 58 to Col. 5, line 12 disclose both high pressure fuel lines 13, and a high pressure pump 20) and a plurality of leak lines connected to capture fuel leaking from the plurality of high spaces (Col. 4 line 58 to Col. 5, line 12). Greco et al. further disclose a wet sensor connected to the plurality of leak lines. The wet sensor is disclosed as being connected to the rail leak lines and possibly other areas of high pressure. The openings that connect the leak lines to the wet sensor or to a common cavity connected to the wet sensor are considered to be "diagnostic ports". Fuel is evacuated from any line connected to the port because it passes through the port in order to arrive at the wet sensor where a leak determination can be made.
14. Claims 9-11 and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 7,051,576 (Hutchinson et al.).

15. With respect to claim 9, Hutchinson et al. disclose a plurality tanks (Col. 1, lines 20-30) with means for pumping fuel to the surface which are considered to be high pressure spaces. Hutchinson et al. also disclose leak lines for collecting leaked fluid (double walled lines, Col. 1, line 66 to Col. 2, line 10). The valve (96) for evacuating fluid from the leak lines is considered to be a "diagnostic port."
16. With respect to claim 10, Hutchinson et al. disclose a cavity (trap conduit, 92, Fig. 3) located between the leak line (56, Fig. 3) and the "diagnostic port" (96, Fig. 3) for capturing fuel from the leak line.
17. With respect to claim 11, the valve (96) comprises a separate closure for opening and closing each of the said leak diagnostic ports.
18. With respect to claim 17, Hutchinson et al. disclose capturing fuel from one of a plurality of different high pressure spaces into one of a plurality of leak lines (Col. 8, lines 12-42). Hutchinson et al. disclose opening one different leak diagnosis ports for periods of time long enough to evacuate fuel from the leak lines (Col. 8, lines 43-60). The sensing unit controller (84) generates an alarm that identifies which high pressure space is leaking (Col. 8, lines 28-33).
19. With respect to claim 18, the sensor 94 detects a leak before the valve is opened to release the fuel (Col. 8, lines 43-49).
20. With respect to claim 19, Hutchinson et al. disclose a leak collection cavity (92) upstream of each leak diagnosis port (96).

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21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

23. Claims 12, 1, 3, 4, is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,817,343 (Greco et al.).

24. With respect to claim 12, Greco et al. do not explicitly disclose how to connect the leak lines to the wet sensor. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Greco et al. by providing a common line which collected leaked fluids from each of the leak and is connected to the wet sensor because several leak lines are disclosed and only one wet sensor is.

25. U.S. Patent 6,817,343 (Greco et al.) discloses a fuel system for an engine including leak lines and a wet sensor in order to detect a leak in a high pressure space in an engine (abstract and Col. 4 line 58 to Col. 5, line 12). Greco et al.

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suggests at least three fuel spaces. Greco et al. explicitly disclose a first leak (45) line coming from the fuel rail (28). Greco et al., discloses more than one common rail (Col. 4, lines 40-44), which suggests at least a second common rail. Combined with the disclosure to provide for more than one leak line from different high pressure spaces (Col. 4 line 58 to Col. 5, line 12) this teaches at least two rail lines connected to a wet sensor (38). Greco et al. further discloses provide a leak line from the high pressure pump (Col. 5, lines 5-9) to the wet sensor (38). In summation Greco et al. suggests a leak detection system with at least three leak lines and one wet detector; two leak lines from the two common rails and a third from the high pressure pump. Greco et al. do not explicitly disclose the structure for connecting three leak lines to one wet sensor. One of ordinary skill in the art would have two ways to connect the three lines to one output, either the leak lines would either lead into a common line at different points or there would be a junction at which all the leak lines would converge. Fig. 15 (below) illustrates a junction for connecting three inputs (leak lines) to one output (wet sensor).

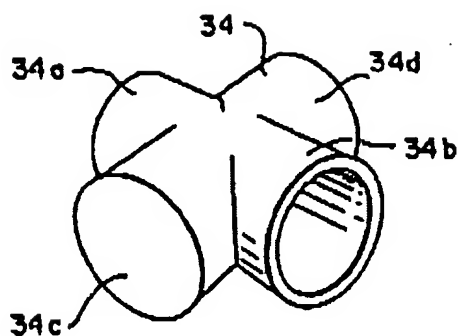


FIG. 15

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Greco et al. by providing a connection with three inputs and one output, as disclosed by Fig. 15, in order to save the expense of providing additional wet sensors.
27. With respect to claim 1, the combination as provided above discloses a leak diagnosis component for the fuel system of an engine (Col. 4, line 58 to Col. 5, line 12). The junction described in Fig. 15 above is considered to be a "junction block" with a plurality of inlets (34a, 34b 34c) and at least one outlet (34d). The combination described above teaches connecting the inlets of the junction to the leak lines of a fuel system of an engine ((Col. 4, line 58 to Col. 5, line 12). The cavity is considered to be the empty space inside the junction. The leak diagnostic port is considered to be the each of inlets 34a, 34b, 34c which are located between the interior cavity and the external surface of the junction.
28. With respect to claim 3, the combination as applied to claim 1 discloses a wet sensor for detecting leaks (38, Fig. 1).

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29. With respect to claim 4, the combination as applied to claim 1 discloses the outlet being a single outlet (34d, Fig 15 above).

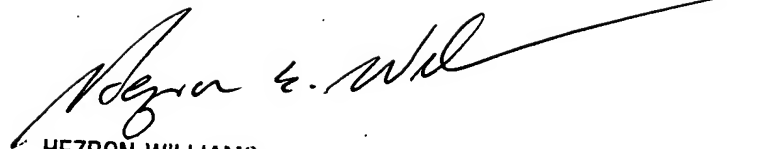
Conclusion

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Christensen whose telephone number is 571-272-2683. The examiner can normally be reached on Monday - Friday, 8am - 5pm.
31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
32. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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RC

A handwritten signature in black ink, appearing to read "Hezron Williams", with a long horizontal flourish extending to the right.

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800